ABSTRACT

INTRODUCTION

Chronic kidney disease [CKD] is a worldwide health problem with an increasing incidence and prevalence, poor outcomes and high cost. The complex interaction of the kidney and thyroid gland is well known. The literature available regarding thyroid dysfunction in chronic kidney disease on conservative management is still low. The importance of knowing the prevalence of thyroid dysfunction in CKD patients lies in the fact that it adds to already high cardiovascular mortality risk in this patient group. This original research was undertaken to study the thyroid dysfunction that occurs in CKD patients not on maintenance dialysis.

AIMS AND OBJECTIVES:

To study the proportion of thyroid dysfunction in chronic kidney disease patients on conservative management And to study the correlation between the severity of the renal dysfunction with the thyroid abnormality.

MATERIALS AND METHODS:

This is a prospective, cross sectional study conducted in Thanjavur medical college, Thanjavur from January 2016 to june 2016. 100 chronic kidney disease patients in medical ward and out patient department fulfilling inclusion and exclusion criteria were included.

RESULTS:

100 CKD patients on conservative management who fulfilled the criteria were studied and the results analyzed.Of 100 patients 66 (66%) were males and 34 (34%) were females.In our study 18 patients (18%) were stage 3 CKD, 43 patients (43%) were stage 4 CKD and 39 patients (39%) belonged to stage 5 CKD. Creatinine clearance varied from 5.5 to 60 ml/min/1.73m^2.Serum TSH varied from 0.32 – 45 with mean of 4.71 and S.D. of 7.31. Serum Free varied from 0.12 – 1.76 with mean of 1.31 and S.D. of 0.26..Serum Total T3 ranged from 0.04 to 2 with mean of 0.8 and S.D. of 0.61.In present study overall 66 patients (66%) had thyroid dysfunction, 34 patients (34%) had normal thyroid function tests.Low T3 syndrome was the commonest thyroid dysfunction observed in 45 patients (45%). 3 patients (16.7%) of stage 3 CKD ,19 patients (44.2%) of stage 4 CKD and 23 patients (59%) of stage 5 CKD had low T3 syndrome.Subclinical hypothyroidism was the second common thyroid dysfunction. It was detected in 16 patients (16%). 1 patient(5.6%) of stage 3, 3 patients (7.0%) of stage 4 and 12 patients (30.8%) of stage 5 had subclinical hypothyroidism.5 patients had frank hypothyroidism in our study. 3 patients (7.7%) were stage 5 CKD. 1 patient (2.3%) in stage 4 and 1 patient (5.6%)in stage 3 CKD. Number of patients with low serum T3 levels increased proportionately with decreasing creatinine clearances with p = 0.023(S). Serum FT4 levels was not significantly related to worsening renal function p = 0.227 (NS). Higher Serum TSH levels were found in more number of patients as the creatinine clearance decreased with a p = 0.004(HS).The proportion of CKD patients with SCH was 5.6% in stage 3, 3.7% in stage 4 and 30.8 in stage 5 CKD.The Low T3 syndrome was found in

16.7% in CKD stage 3, 44.2% in stage 4 CKD and 59%in stage 5 CKD.Hypothyroidism was found in 5.6% of stage 3CKD, 2.3%of stage 4 and 7.7% of stage 5 CKD.76 patients (76%) were anemic with peripheral smear showing normocytic normochromic picture in 64 patients (84%) and microcytic hypochromic anemia seen in 12 patients (16%).Hypocalcaemia was noted in 62 patients (62%) and hyperphosphatemia was noted in 43 patients(43%).USG abdomen revealed bilateral shrunken kidneys in 80 patients (80%), Hydrouretronephrosis in15 patients (15%) and normal sized kidneys in (5%).Thyroid swelling was found in 5 patients. FNAC revealed multi nodular goiter in all 5 patients.

CONCLUSION:

Thyroid dysfunction occurred in 66% of Chronic Kidney Disease patients. Low T3 syndrome was the commonest thyroid abnormality detected. This can be viewed as protective mechanism to conserve protein in Chronic Kidney Disease patients.Subclinical hypothyroidism was the second most common thyroid abnormality detected. It occurred in 16% patients indicating significant alteration of thyroid hormone physiology in Chronic Kidney Disease patients. Frank hypothyroidism was the least commonly detected thyroid abnormality. Number of patient with Low T3 syndrome and subclinical hypothyroidism progressively increased with increasing severity of Chronic Kidney Disease.

Key words: Chronic Kidney Disease, Low T3 syndrome, Frank hypothyroidism, subclinical hypothyroidism, eGFR.